

Application No.: 09/889971

Docket No.: 08577-00036-US

AMENDMENTS TO THE CLAIMS

1. (Currently amended) A method for producing a bridged polymer membrane, comprising the steps of:

obtaining a liquid medium comprising a basic polymer having an amino group in a repeating unit, a bridging agent, and a solvent;

shaping the liquid medium into a membrane configuration to obtain a shaped membrane; and

bridging the basic polymer by the bridging agent in the shaped membrane and said basic polymer contains an aromatic ring containing at least nitrogen atom.

2-7. (cancelled)

8. (previously presented) The method as claimed in claim 1, wherein the bridging agent has at least two epoxy groups or isocyanate groups in the molecule.

9. (previously presented) The method as claimed in claim 1, wherein the liquid medium contains 0.001 to 0.8 mole of the bridging agent per unit of the basic polymer.

10. (previously presented) The method as claimed in claim 1, wherein the basic polymer is selected from the group consisting of polybenzimidazole, polyimidazole, polyvinylimidazole and polybenzobisimidazole.

11. (previously presented) The method as claimed in claim 1, further comprising the step of impregnating the basic polymer with a strong acid for providing proton conductivity.

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12. (previously presented) The method as claimed in claim 1, wherein the basic polymer has a strong acid group in the repeating unit in the basic polymer.
13. (previously presented) The method as claimed in claim 8, wherein the liquid medium contains 0.001 to 0.8 mole of the bridging agent per unit of the basic polymer.
14. (previously presented) The method as claimed in claim 13, wherein the basic polymer is selected from the group consisting of polybenzimidazole, polyimidazole, polyvinylimidazole and polybenzbisimidazole.
15. (previously presented) The method as claimed in claim 1, wherein said amino group is a primary amino group or a secondary amino group.

Claim 16 Cancelled

17. (previously presented) The method as claimed in claim 1, wherein said basic polymer is polybenzbisimidazole.
18. (previously presented) The method as claimed in claim 17, wherein a strong acid group is introduced into the amino group of a polybenzimidazole through a linker.
19. (previously presented) The method as claimed in claim 8, wherein the liquid medium contains 0.01 to 0.5 mole of the bridging agent.
20. (previously presented) The method as claimed in claim 8, wherein the liquid medium contains 0.05 to 0.3 mole of the bridging agent.

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21. (previously presented) A fuel cell comprising a plurality of single cells, each of the single cells comprising a bridged polymer membrane obtained by the method as claimed in claim 11, and a pair of electrodes sandwiching the bridged polymer membrane.

22 (new) A method for producing a bridged polymer membrane, comprising the steps of:
obtaining a liquid medium comprising a basic polymer having an amino group in a repeating unit, a bridging agent, and a solvent;
shaping said liquid medium into a membrane configuration to obtain a shaped membrane;
and
bridging the basic polymer by the bridging agent in the shaped membrane and said bridging agent has at least two epoxy groups or isocyanate groups in the molecule and said liquid medium contains 0.001 to 0.8 mole of the bridging agent per unit of the basic polymer.